

HUMAN FERTILITY

II.—A Further Study of German Women

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Translated by E. O. LORIMER

BOTH in Monograph VI of the Eugenics Research Association and in my article on "Human Fertility" in the last number of the *EUGENICS REVIEW* (October 1932), I maintained the thesis that the decline in the birth rate was the outcome of an immense evolutionary change in the human animal (*Umzüchtung der Menschheit*) due to the fact that a large proportion of men were driven to marry for money and to seek their wives, therefore, in a social stratum lower than their own. Since the largest dowries are to be found, *ceteris paribus*, in the families with fewest children, it came about that the wives thus chosen from the lower strata represented a selection in favour of low fertility. If this contention is to be accepted the first desideratum is some proof of the existence of heritable differences in the degrees of fertility. This was statistically proved in the article on "Human Fertility" cited above, and my thesis was supported by conclusions drawn from statistics of the most varied kinds. It is however desirable further to corroborate my deductions by actual figures.

This is rendered possible by the mass of statistics supplied by the *Court Calendars* from 1776-1932, and the *Gotha Almanachs*: the Counts' from 1834-1932, and the *Freiherren* from 1854-1932.* I have been able to investigate 6,157 marriages and accurately to determine the number of children of the marriage from which each parent sprang. This number I denote by the words Sibship Figure—SF (*Abstammungszahl*).

The 6,157 marriages where the SF for

both man and wife could be ascertained, naturally form a small proportion of the material. As a general rule only the husband's SF is given in the *Almanach*, and the wife's family is frequently not represented at all. It is never included, of course, when she is of middle-class origin, and is often omitted even when she is of noble birth. These 6,157 marriages, for which detailed information was available, represent, therefore, a selection from a large material (of 16,975 marriages). The question at once presents itself—is the selection a fair sample of the whole? It is easy to find a touchstone for the men by comparing their figures with those of the whole. In the case of the women this is impossible, since there are no total statistics, but we can achieve a sufficiently exact approximation by hypothetically equating the total of the women with that of the men.

Tables I, II, and III show, at twenty-year intervals, the SF of all married noblemen between the ages of forty and sixty from the *Court Calendars* 1776-1932, of the Counts from the *Gotha Almanachs* 1834-1932, and of the *Freiherren* from the *Almanachs* 1854-1932. From the individual SF's the average SF for groups and sub-groups is calculated and tabulated in Tables I-III. The material has been sub-divided according as the husband took his wife from the Old Nobility (ON) the New Nobility (NN), or the Middle Classes (MC).

Similarly, Tables IV, V, and VI show the SF's for all the men and women of those marriages where the SF was ascertainable for the wife as well as for the husband.

It is evident that the groups and sub-groups of the three last tables show, in the main, the same SF's for the men of the 6,157 selected marriages as the first three tables

* The author's argument will scarcely be fully understood without reference to his Table of the German Nobility in the October article.—*Translator*.

show for the total of the men. There can be no question of our chosen marriages representing a selection from families with either a markedly strong or a markedly weak fertility factor. The SF's of the women, on the other hand, show marked differences according as the woman belongs by birth to the Old or to the Newer Nobility.

The last columns in Tables IV and V show that (with two negligible exceptions) the SF of the NN women is markedly lower than that of the ON women; whereas column 4, with its constant interchange of plus and minus, shows that between the figures in columns 2 and 3 there are no similar considerable differences of SF among the men.

This is confirmed by the lack of mathematical support for the total figures in Table VI, whereas the differences of the average SF for the total of the ON and the NN women are mathematically assured.

Now when we try to form a clear conception of how these differences of SF between women of the Old and New Nobility bear on the decline of the birth rate, we are confronted with the unfortunate fact that we know practically nothing about the inheritance of human fertility beyond the bare fact that it is demonstrably heritable. We do not know by how many genes it is determined nor what is the nature of their transmission. Since it is a physiological property, we are fairly safe in assuming that fertility is dependent on several factors whose varying co-operation is responsible for varying grades of fertility.

The only accurate knowledge of these questions we possess, is that established in my ninth and tenth* articles—that as the parents themselves spring from large or small families the number of their own children will fluctuate accordingly. The moment, however, that we seek seriously to determine the influence of the mother's SF on her fertility, we are up against the disturbing fact that while the fertility of marriage can be expressed by a number—

viz. the number of children—this is not the case with the potential fecundity of the marriage, since this depends on two people. I have tried to minimize this difficulty, pending further knowledge, by taking as the numerical expression of the potential fecundity of a marriage, the arithmetical mean between the SF's of the two parents. Since we find from Tables I-III that the SF's of the men who married ON wives are approximately identical with the average SF of those who married NN wives, this method permits us statistically to estimate the influence of the lower SF's of the women on the number of children who spring from their marriages.

Table VII brings together all the marriages dealt with in Tables IV-VI. To get the largest possible sub-divisions I have here abandoned the plan of separating Princes, Counts, and Freiherrn, and have tabulated the combined material according to the dates of marriage, all marriages prior to 1832 forming one group.

Table VII demonstrates very clearly that the arithmetic mean of the average SF's of the men who married ON women is absolutely constant. Correspondingly, we find the number of children resulting from these marriages roughly the same at all periods. Only in the two latest periods is there a definite tendency for the number to fall off. My article in the October REVIEW gives the biological explanation of this phenomenon. In contrast to this the arithmetic mean of the SF's of marriages with NN women shows from the outset an unmistakable tendency to grow smaller and, correspondingly, the number of children issuing from these marriages inclines to decrease. The most interesting columns, however, are those showing the differences of SF and number of children. They clearly demonstrate that in the main the two run parallel. The two exceptions in the first and fourth periods are susceptible of explanation: the first period deals with very small numbers, only 285 and 52 marriages. It must also be recalled that the *Court Calendars* of 1832 and earlier usually omit the junior branches of the higher nobility which experience shows to

* To be published in *Archiv. f. sociale-Hygiene und D mographie*.

be the most fertile of all. The material of the earliest period is therefore not representative and must be considered as of little value for demonstration.

In the fourth period the remarkably high difference recorded in the last column is accounted for by the exceptionally high figure, 3.28, in column 5. The figures were carefully checked a second time and the number proved to be correct. I have therefore calculated the mean error and supplied it. The result shows that the material is insufficient, and that while the other figures had closely approached the mean, those yielding 3.28 had accidentally failed to do so. In spite of this, the final result clearly shows that over the whole material the difference between the average number of children of ON and NN mothers is so marked that it may be considered mathematically established.

If we now summarize the conclusions of this work, we find mathematical proof that wives of a lower social grade—married for their money—have an average SF only eight-ninths of that shown by the women of ON birth. I have shown in my ninth and tenth articles that the higher or lower SF corresponds to a higher or lower rate of children per marriage; and it is therefore clear that the selection of these women of lower social status represents a selection in favour of lower fertility. It was further concluded that the marriage with these women of lower fertility would be bound to bring about a lowering of phenotypical fertility.

This conclusion is strengthened by the fact that ON women who marry in their own rank have through the centuries maintained their fertility almost unaltered down to the most recent times. While side by side with them, in precisely the same social and economic conditions, the parallel group of NN women show a progressive decline in fertility.

Finally we observe that the decrease in the number of children in the families of the NN mothers has proceeded *pari passu* with the decrease in the arithmetic mean of the SF's of the NN wives and their husbands.

BIBLIOGRAPHY

Articles by the same author, in addition to those quoted at the end of the article in the October number (1932) of this REVIEW :

8. Der Einfluss der Revolution auf die Fruchtbarkeit der deutschen Fürsten. *Archiv für Sippenforschung*. X, 1.

9. *Human Fertility*. *EUGENICS REVIEW* XXIV, 3 (October 1932).

TABLE I.—Showing the Sibship Figure of all married noblemen between the ages of 40 and 60 who are included in the *Court Calendars* from 1776-1932, tabulated according to their marriage with wives of ON, NN, and MC* birth.

Date of Marriage	ON*	NN*	MC*
1752-1771	3.67 [60]	7 [2]	
1772-1791	3.57 [76]	5.62 [8]	2 [1]
1792-1811	4.62 [68]	4.75 [8]	
1812-1831	3.83 [133]	4.15 [34]	4.17 [6]
1832-1851	4.22 [171]	4.4 [57]	5.57 [7]
1852-1871	4.07 [183]	4.97 [76]	4.1 [19]
1872-1891	4.37 [241]	4.12 [162]	5.17 [93]
1892-1911	4.61 [305]	5.1 [145]	5.33 [91]
1912-1931	4.54 [257]	4.31 [150]	4.25 [205]
Total 1752-1931	4.29 [1494]	4.55 [642]	4.52 [422]

* ON=Old Nobility. NN=New Nobility.
MC=Middle Classes.

TABLE II.—Showing the average Sibship Figure [SF] of *all married Counts* between 40 and 60 who are included in the *Counts' Almanachs* from 1834-1932, tabulated according to their marriage with wives of ON, NN, and MC birth.

Date of Marriage	Original Counts			Patent Counts		
	ON	NN	MC	ON	NN	MC
1812-31	4.08 [146]	4.69 [121]	3.1 [12]	3.89 [44]	3.86 [84]	2.33 [6]
1832-51	4.1 [263]	4.35 [223]	4.25 [32]	2.77 [144]	3.93 [259]	4 [14]
1852-71	4.11 [246]	4.3 [249]	5.05 [66]	4.2 [144]	4.13 [274]	4.25 [61]
1872-91	4.78 [284]	3.92 [320]	4.29 [115]	3.23 [146]	4.24 [326]	4.16 [113]
1892-1911	4.26 [316]	5.75 [232]	3.93 [183]	4.27 [175]	3.88 [272]	3.35 [130]
1912-31	4.23 [263]	4.28 [241]	4.33 [192]	4.31 [191]	3.76 [266]	4 [183]
Total 1812-1931 ...	4.29 [1,518]	4.49 [1,386]	4.25 [600]	4.05 [844]	3.99 [1,481]	3.88 [507]
1812-1931	Total of all Counts 4.21 [2,362]					
		4.23 [2,867]	3.98 [1,107]			

TABLE III.—Showing the average Sibship Figure (SF) of *all married Freiherren* between 40 and 60 included in the *Freiherren Almanachs* from 1854-1932, tabulated according to their marriages with wives of ON, NN, and MC.

Date of Marriage	Original Freiherren			Patent Freiherren		
	ON	NN	MC	ON	NN	MC
1832-51	5.14 [91]	5.07 [129]	4.91 [34]	4.68 [65]	4.3 [184]	3.8 [52]
1852-71	4.94 [255]	4.72 [315]	4.77 [186]	4.14 [142]	4.72 [435]	3.95 [255]
1872-91	5.51 [328]	4.33 [355]	4.6 [358]	3.83 [162]	3.63 [559]	4.06 [374]
1892-1911	4.23 [342]	4.13 [329]	4.01 [485]	4 [226]	3.17 [633]	3.72 [511]

Date of Marriage	ON	NN	MC	ON	NN	MC
1912-31	4.28 [197]	4 [184]	4.11 [328]	4.26 [69]	3.28 [208]	3.54 [272]
Total 1832-1931 ...	4.53 [1,213]	4.4 [1,312]	4.31 [1,391]	4.08 [664]	3.5 [2,019]	3.83 [1,464]
1832-1931	<i>Total of All Freiherren</i> 4.37 [1,877]	3.87 [3,331]	4.06 [2,855]			

TABLE IV.—Showing the average Sibship Figure (SF) of *all the married princes* between 40 and 60 in all cases where the wife's Sibship Figure was also available from the *Court Calendars, 1776-1932*.

I	Average SF of husbands with wives of		Difference of SF's in Cols. 2 & 3 in relation to Col. 3		Average SF of corresponding wives of		Difference of SF's in Cols. 5 & 6 in relation to Col. 6	
	2	3	4		5	6	7	
Date of Marriage	ON	NN			ON	NN		
1752-71	3.9 [31]	—	—		4.5 [31]	—	—	
1772-91	3.81 [47]				4.55 [47]			
1792-1811	4.76 [46]	—	—		5.06 [46]	—	—	
1812-31	4.13 [86]	9 [1]	+4.87		5 [86]	5 [1]	±0	
1832-51	4.15 [132]	3.82 [11]	—0.33		5.06 [132]	4.55 [11]	—0.51	
1852-71	5.24 [110]	4.81 [16]	—0.43		4.56 [110]	3.37 [16]	—1.19	
1872-91	4.46 [162]	5.57 [28]	+1.11		4.7 [162]	3.93 [28]	—0.77	
1892-1911	4.88 [205]	6.28 [25]	+1.4		4.81 [205]	3.64 [25]	—1.17	
1912-31	5.1 [177]	4.7 [20]	—0.4		4.6 [177]	3.95 [20]	—0.65	
Total 1752-1931 ...	4.64 [996]	5.29 [101]	+0.65		4.79 [996]	3.85 [101]	—0.94	

TABLE V.—Equivalent of IV for Counts only, 1834-1932.

ON Counts						
Date of Marriage I	2	3	Difference 4	5	6	Difference 7
1812-31	3.78 [55]	4.72 [28]	+0.94	4.7 [55]	4.75 [28]	+0.05
1832-51	4.5 [107]	4.43 [51]	-0.07	5.08 [107]	4 [51]	-1.08
1852-71	4.05 [130]	4.12 [72]	+0.07	4.39 [130]	4.1 [72]	-0.29
1872-91	4.87 [199]	4.14 [103]	-0.73	4.37 [199]	4.03 [103]	-0.34
1892-1911	4.27 [249]	4.8 [137]	+0.53	4.39 [249]	4.32 [137]	-0.07
1912-31	4.6 [211]	4.27 [117]	-0.33	4.6 [211]	3.91 [117]	-0.69
Total 1812-1932 ...	4.44 [951]	4.41 [508]	-0.03	4.52 [951]	4.11 [508]	-0.41

NN Counts						
I	2	3	4	5	6	7
1812-31	3.6 [20]	3.17 [23]	-0.43	5.5 [20]	4.56 [23]	-0.94
1832-51	3.36 [75]	3.64 [64]	+0.24	4.83 [75]	4.48 [64]	-0.35
1852-71	4.08 [91]	3.85 [94]	-0.23	4.52 [91]	4.02 [94]	-0.5
1872-91	3.91 [106]	4.35 [139]	+0.44	4 [106]	3.73 [139]	-0.27
1892-1911	4.1 [145]	4.05 [112]	-0.05	4.43 [145]	4 [112]	-0.43
1912-32	4.06 [147]	4.12 [116]	+0.06	3.97 [147]	3.89 [116]	-0.08
Total 1812-1932 ...	3.94 [584]	4.02 [548]	+0.08	4.34 [584]	3.99 [548]	-0.35

TABLE VI.—Equivalent of IV for Freiherren only, 1854-1932.
ON Freiherren

Date of Marriage I	2	3	Difference 4	5	6	Difference 7
1832-51	5.16 [37]	5.38 [26]	+0.22	5.11 [37]	4.65 [26]	-0.46
1852-71	4.33 [148]	4.73 [87]	+0.4	4.71 [148]	4.07 [87]	-0.64
1872-91	4.31 [242]	4.07 [137]	-0.24	4.52 [242]	3.88 [137]	-0.64
1892-1911	4.1 [274]	3.75 [146]	-0.35	4.34 [274]	3.79 [146]	-0.55
1912-31	4.26 [175]	4 [99]	-0.26	4.3 [175]	3.85 [99]	-0.45
Total 1832-1931 ...	4.28 [876]	4.15 [495]	-0.13	4.48 [876]	3.93 [495]	-0.35

NN Freiherren

I	2	3	4	5	6	7
1832-51	4.59 [27]	4.29 [52]	-0.3	4.48 [27]	4 [52]	-0.48
1852-71	4 [76]	3.86 [127]	-0.14	4.54 [76]	4.22 [127]	-0.32
1872-91	4.06 [105]	3.7 [191]	-0.36	4.3 [105]	4.21 [191]	-0.09
1892-1911	3.8 [181]	3.72 [211]	-0.08	4.5 [181]	3.88 [211]	-0.62
1912-31	4.02 [58]	3.17 [70]	-0.85	5.04 [58]	3.73 [70]	-0.51
Total 1832-1931 ...	3.99 [447]	3.68 [651]	-0.31	4.53 [447]	4.04 [651]	-0.49

Total for all Noblemen—Princes, Counts and Freiherren, 1752-1931

1752-1931	4.33 [3,854] ±0.07	4.01 [2,303] ±0.083		4.55 [3,854] ±0.073	4.01 [2,303] ±0.083	
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TABLE VII.—Comparative Summary of Tables IV-VI for all Noblemen (Princes, Counts, and Freiherren) and their Wives.

Date of Marriage I	Arithmetic Mean of average Sibship Figure of both husbands and wives		Difference 2 and 3 in relation to Col. 3	Average Number of Children of		Difference 5 and 6 in relation to Col. 6
	ON wives 2	NN wives 3		ON wives 5	NN wives 6	
1752-1831	4.46	4.39	-0.07	3.15	2.65	-0.5
1832-51	4.6	4.24	-0.36	3.31	2.92	-0.39
1852-71	4.45	4.11	-0.34	3.09	2.7	-0.39
1872-91	4.41	4.04	-0.37	3.28 ±0.115	2.63	-0.65
1892-1911	4.4	4.03	-0.37	2.87	2.57	-0.3
1912-31	4.46	3.93	-0.53	2.93	2.4	-0.53
Total 1752-1931 ...	4.44	4.01	-0.43	3.06 ±0.05	2.61 ±0.054	-0.45

Correspondence on this subject appears on page 343.

The Application of Family Allowances to Salaried Occupations

will be the subject of the Address by

Mrs. EVA HUBBACK, M.A.

at a

MEMBERS' MEETING on Tuesday, MARCH 14th, at 5.30 p.m.

Chairman: Dr. R. A. FISHER, F.R.S.

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